

Docket No.: Docket 60153-USA-DIV1
Application No.: 10/007,328

PATENT

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Previously Presented) A method of encapsulating a chemical agent comprising:

- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a polyisocyanate;
- (b) converting the polyisocyanate to an encapsulating polymer, by heating the combination of (a) to at least about 40° C, forming the precipitated polymer from the polyisocyanate, thereby forming encapsulated particles of the chemical agent; and
- (c) combining the encapsulated particles of step (b) with a second encapsulating agent;

wherein the polyisocyanate comprises residues derived from an alkylene diisocyanate.

6. (Original) The method of claim 5 wherein the alkylene diisocyanate is hexamethylene diisocyanate.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

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10. (Previously Presented) A method of encapsulating a chemical agent comprising:

- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;
- (b) converting the first encapsulating agent to an encapsulating polymer, by changing the pH of the aqueous solvent to precipitate the polymer, then reacting the encapsulating polymer with a first curing agent, thereby forming encapsulated particles of the chemical agent; and
- (c) combining the encapsulated particles of step (b) with a second encapsulating agent;

wherein the first curing agent is an inorganic or organic salt having a multivalent cation.

11. (Original) The method of claim 10 wherein the first curing agent is selected from the group consisting of: calcium chloride, calcium carbonate, magnesium chloride, calcium lignosulfonate, calcium alkylbenzene sulfonate, and calcium stearate.

12. (Original) The method of claim 11 wherein the first curing agent is calcium lignosulfate.

13. (Previously Presented) A method of encapsulating a chemical agent comprising:

- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;
- (b) converting the first encapsulating agent to an encapsulating polymer, by changing the pH of the aqueous solvent to precipitate the polymer, then reacting the encapsulating polymer with a first curing agent by heating to a temperature of at least about 40° C, thereby forming encapsulated particles of the chemical agent; and

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(c) combining the encapsulated particles of step (b) with a second encapsulating agent;

wherein the first curing agent is selected from the group consisting of: diamines, silanes, aldehydes, polyhydroxides, epoxides, diepoxides, or water soluble amino resins.

14. (Original) The method of claim 13 wherein the first curing agent is formaldehyde.

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Previously Presented) A method of encapsulating a chemical agent comprising:

(a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;

(b) converting the first encapsulating agent to an encapsulating polymer, thereby forming encapsulated particles of the chemical agent; and

(c) combining the encapsulated particles of step (b) with polyisocyanates that form a second encapsulating polymer;

wherein the polyisocyanate comprises residues derived from an alkylene diisocyanate.

20. (Original) The method of claim 19 wherein the alkylene diisocyanate is hexamethylene diisocyanate.

21. (Cancelled)

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22. (Cancelled)

23. (Cancelled)

24. (Previously Presented) A method of encapsulating a chemical agent comprising:

- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;
- (b) converting the first encapsulating agent to an encapsulating polymer by lowering the pH of the aqueous solvent, thereby forming encapsulated particles of the chemical agent; and
- (c) combining the encapsulated particles of step (b) with a second encapsulating agent;

wherein the first encapsulating agent is a polymer selected from the group consisting of: polyanhydrides, polyanhydride acids, polyanhydride salts, polyanhydride esters, styrene maleic anhydride copolymers and hydrolysis and neutralization products thereof, polysaccharides, acrylic acid polymers, polyacrylamides, acrylic polymers, hydrophobically-modified polyacrylic acids, and salts of alkyl naphthalene sulfonate polymers.

25. (Original) The method of claim 24 wherein the first encapsulating agent is selected from the group consisting of: maleic anhydride copolymer disodium salt, styrene maleic anhydride copolymer amide ammonium salt, styrene maleic anhydride copolymer ammonium salt, poly(methyl vinyl ether-co-maleic anhydride), N-methylolacrylamide, and poly(vinyl chloride-co-vinyl acetate-co-hydroxyl acrylate).

26. (Cancelled)

27. (Previously Presented) A method of encapsulating a chemical agent comprising:

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- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;
- (b) converting the first encapsulating agent to an encapsulating polymer by lowering the pH of the aqueous solvent by adding an acid, thereby forming encapsulated particles of the chemical agent; and
- (c) combining the encapsulated particles of step (b) with a second encapsulating agent;

wherein the acid is acetic acid.

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Previously Presented) A method of encapsulating a chemical agent comprising:

- (a) combining, in an aqueous solvent, particles of a chemical agent suspended in the aqueous solvent and an encapsulation effective amount of a first encapsulating agent;
- (b) converting the first encapsulating agent to an encapsulating polymer, by decreasing the pH of the aqueous solvent by addition of acid to less than about 6 to precipitate the polymer, then reacting the encapsulating polymer with calcium salt by heating to a temperature of at least about 40° C; and
- (c) combining the encapsulated particles of step (b) with a second encapsulating agent;

further comprising the steps of combining the product of steps (a), (b) and (c) with a water-dispersible polyisocyanate based on hexamethylene diisocyanate and heating the resulting combination to a temperature above about 40° C.